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Amendment and/or Response
Reply to FINAL Office action of 18 July 2006

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Listing of the Claims:

A clean version of the entire set of pending claims is submitted herewith per 37 CFR 1.121(c)(3). This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) An interpolation method for a video signal, in which at least two line-memories are used, the line-memories being applied with an input digital video signal, and in which the line-memories are subjected to controls on their writing and reading so that a video signal subjected to vertical interpolation is generated from reading outputs of the line-memories, wherein

for the controls on writing and reading, any of the line-memories are circularly selected and a sample sequence of the input digital video signal is sequentially written into the selected line-memory at a sample rate of the sample sequence, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control.

2. (Original) A method according to Claim 1, characterized in that the line-memories are FIFO type memories having a dual port.

3. (Previously Presented) A method according to Claim 1, characterized in that the constant rate corresponds to a dot-frequency of image to be displayed.

4. (Previously Presented) A method according to Claim 1, characterized in that a line-memory to be in a reading mode is designated based on a synchronization signal having a frequency more than by a factor of the vertical expansion ratio as high as a horizontal synchronization frequency of the input digital video signal.

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5. (Original) An interpolation method for a video signal, in which at least one line-memory is used, the line-memory being applied with an input digital video signal, and in which the line-memory is subjected to controlling including writing and reading thereof so that a video signal subjected to horizontal interpolation is generated from a reading-output of the line-memory, wherein

the signal subjected to horizontal interpolation is applied to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means,

a shift-clock signal is applied to the shift-register, the shift-clock signal having a predetermined frequency for shifting data latched in the shift-register,

for the controlling:

a sequence of samples of the input digital video signal is written into the line-memory while the samples of the written sequence are sequentially read out in response to a read-clock signal; and

a frequency of the read-clock signal is set to have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio.

6. (Original) A method according to Claim 5, characterized in that the read-clock signal is generated based on the shift-clock signal.

7. (Previously Presented) A method according to Claim 5, characterized in that within one horizontal scanning period, one line of samples stored in the line-memory are read out at uniform intervals.

8. (Original) A display device with a function of interpolating for a video signal, in which at least two line-memories are used, the line-memories being applied with an input digital video signal, and in which the line-memories are subjected to controls

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on their writing and reading so that a video signal subjected to a vertical interpolation is generated from reading-outputs of the line-memories, wherein the device comprises:

control means for performing such a control that in the controls on writing and reading, any of the line-memories are circularly selected and a sequence of samples of the input digital video signal are sequentially written into the selected line-memory at a sample rate of the samples, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control.

9. (Original) A display device with a function of interpolating for a video signal, comprising at least one line-memory being applied with an input digital video signal, wherein the line-memory is subjected to controlling including writing and reading thereof so that a video signal subjected to horizontal interpolation is generated from reading-outputs of the line-memories, which further comprises:

means for applying the signal subjected to horizontal interpolation to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means;

means for applying a shift-clock signal to the shift-register, the shift-clock signal having a predetermined frequency for shifting data latched in the shift-register; and

means for performing writing a sequence of samples of the input digital video signal into the line-memory while sequentially reading out the samples of the written sequence in response to a read-clock signal, a frequency of the read-clock signal being set to have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio

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10. (Previously Presented) A method according to Claim 2, wherein the constant rate corresponds to a dot-frequency of image to be displayed.

11. (Previously Presented) A method according to Claim 2, wherein a line-memory to be in a reading mode is designated based on a synchronization signal having a frequency more than by a factor of the vertical expansion ratio as high as a horizontal synchronization frequency of the input digital video signal.

12. (Previously Presented) A method according to Claim 3, wherein a line-memory to be in a reading mode is designated based on a synchronization signal having a frequency more than by a factor of the vertical expansion ratio as high as a horizontal synchronization frequency of the input digital video signal.

13. (Previously Presented) A method according to Claim 6, wherein within one horizontal scanning period, one line of samples stored in the line-memory are read out at uniform intervals.

14. (Previously Presented) The display device of claim 8, wherein the at least two line-memories are each dual-port devices.

15. (Previously Presented) The display device of claim 9, wherein the line-memory is a dual-port device.

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